

Application No. 10/761,745  
Atty. Docket No. 2002B124/2  
Amendment dated January 11, 2006  
Reply to Office Action of October 11, 2005

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### REMARKS/ARGUMENTS

Reconsideration of this application is requested. The claims presented for reconsideration are claims 59, 95, and 102-103.

Claim 59 has been amended to add an inlet with a heating device to the feed vaporization and introduction system as described in the specification at paragraphs [0024]-[0026]. The claim has also been amended to include a cooling type system as generally described at paragraphs [0052] and [0054]. The subject matter of now canceled claim 61 has also been added to claim 1 to more specifically define the type of material from which the inner surface of the nozzle is formed.

The specification has also been amended as requested by the Examiner. Accordingly, no new matter has been added by way of this Amendment and Response.

#### Claim Objections

Claims 59, 61, 95, 102, and 103 were objected to due to informalities. The claims have now been amended to correct such informalities.

#### Claim Rejections - 35 U.S.C § 112

All claims stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. This rejection is respectfully traversed.

Certain portions of claim 59 were specifically considered to be of concern in making this rejection. Claim 59 having been properly amended, those concerns have now been alleviated.

Claim 97 was rejected under 35 U.S.C. § 112, first paragraph, for allegedly being non-enabling. That claim having now been canceled, the rejection has been rendered moot.

#### Claim Rejections - 35 U.S.C § 102(b)

Claims 59-61, 66-69, 72-75, 98-101, and 103 were rejected under 35 U.S.C. § 102(b) as being anticipated by Tiller *et al.*, (U.S. Patent No. 5,588,974). This rejection is respectfully traversed.

Applicants' invention is directed to feed vaporization and introduction system for a methanol to olefin (MTO) reactor. The system includes an inlet for receiving a methanol

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feedstock, with the inlet having a heating device for vaporizing the feedstock. A feed introduction nozzle is connected by one or more lines to the inlet, and the nozzle includes a first generally tubular member that acts as a feedstock pathway. The tubular member has a first end for receiving a feedstock from a heating unit, a second end adjacent a reactor unit, and an inner surface forming a conduit for delivering the feedstock from the first end to the second end, with the inner surface being formed at least in part of a specific type of commercial alloy.

The system further includes a second larger diameter cylindrical tube oriented coaxially to the feed introduction nozzle. This tube forms an outer cooling pathway around the feedstock pathway, and the cooling pathway is closed-off at an end corresponding to the first end of the nozzle so that cooling medium can flow toward the reactor unit and exit the feed introduction nozzle within the reactor unit through a diluent outlet.

Tiller discloses a process and apparatus for the production of hydrogen and carbon monoxide in a reactor. The reactor contains a bed of a particulate solids catalyst, or catalyst and solids diluent, and the process is carried out by contacting and reacting within the reaction zone a low molecular weight hydrocarbon feed, steam and oxygen, or a low molecular weight hydrocarbon feed and oxygen, at high temperature. An oxygen stream preheated to high temperature is fed via a nozzle inlet, or inlets, into the reactor, while the hydrocarbon and steam, or hydrocarbon, is fed via a different nozzle inlet, or inlets, into the reactor. Preferred oxygen nozzle designs are constituted of nickel-chromium-iron alloys, especially Inconel 600, and Inconel alloys of the 600 series generally. The oxygen nozzle is comprised of a tubular body with inlet, and outlets of special design, which renders the nozzle especially useful in the intensely hot oxygen environment.

The Tiller apparatus differs from Applicants' claimed invention in that Tiller does not disclose the combination of elements included in Applicants' feed vaporization and introduction system. In particular, Tiller does not disclose an inlet having a heating device such that the inner surface of the of the nozzle is made of a specific alloy combined with a larger diameter tube that serves to form an outer cooling pathway having a diluent outlet through which cooling can flow into a reactor along with feedstock. Accordingly, Tiller fails to disclose or suggest Applicants' claimed invention.

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Claims 59, 60, 62, 66-68, 72-75, 98, and 102 were rejected under 35 U.S.C. § 102(b) as being anticipated by Chowdhury (EP 0 135 144) in view of Haynes International (Product Specification for Hastelloy C-276 Alloy) and Carpenter Technologies (Product Specification for 20Cb-3 Stainless). This rejection is traversed.

Anticipation under 35 U.S.C. § 102 requires a finding that "each and every limitation is found either expressly or inherently in a single prior art reference." *Celeritas Techs. Inc. v. Rockwell Int'l Corp.*, 150 F.3d 1354, 1360, 47 USPQ2d 1516, 1522 (Fed. Cir. 1998). Since three different references are cited in combination in the rejection of Applicants' claims for anticipation, this rejection is necessarily in error. Therefore, the rejection should be removed.

Claims 59, 60, and 98-101 were rejected under 35 U.S.C. § 102(b) as being anticipated by Chowdhury *et al.* (U.S. Patent No. 4,461,743; "Chowdhury '743"). This rejection is traversed.

Chowdhury '743 discloses an apparatus for injecting a mixture of pure oxygen or oxygen-enriched air and purge water into a wet oxidation reactor. An annular space between the oxygen carrying pipe and a second, larger pipe is filled with heat transfer resisting material, which is either maintained statically or passed through the annular space to remove heat.

The reference differs from Applicants' claimed invention in that it does not disclose the combination of elements included in Applicants' feed vaporization and introduction system. In particular, Chowdhury '743 does not disclose an inlet having a heating device such that the inner surface of the nozzle is made of a specific alloy as claimed. Accordingly, Tiller fails to disclose or suggest Applicants' claimed invention.

#### Claim Rejections - 35 U.S.C. § 103

Claim 102 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Tiller *et al.* This rejection is traversed.

As noted in Section III, Tiller fails to disclose the combination of elements set forth in Applicants' claimed invention. The difference in Tiller is more than just the type of alloy used but the entire combination that includes an outer cooling pathway having a diluent outlet through which cooling can flow into a reactor along with feedstock. Accordingly, Tiller fails to suggest Applicants' claimed invention.

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Claims 61 and 95 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chowdhury *et al.* (U.S. Patent No. 4,461,743) in view of Myers *et al.* (U.S. Patent No. 3,574,601). This rejection is traversed.

As noted in Section III, Chowdhury '743 does not disclose an inlet having a heating device such, nor an inlet in which the inner surface of the of the nozzle is made of the specifically claimed alloys. Myers discloses only that an alloy of Cr—Ni—Mo[W]—Cn is beneficial in that it has good corrosion resistance in acid media and high strength. There is no suggestion in Myers, however, that would lead one to modify the Chowdhury '743 device so as to include heating device, and to form the inner surface of the nozzle itself of a specific type of alloy. Accordingly, the combination of Chowdhury '743 with Myers fails to suggest Applicants' claimed invention.

Claims 66-76 and 92-94 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chowdhury *et al.* in view of Bieber *et al.* (U.S. Patent No. 2,234,955). Those claims having been canceled, this rejection is now moot.

Claims 62-76 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chowdhury *et al.* in view of Grant *et al.* (U.S. Patent No. 3,015,558). Those claims having been canceled, this rejection is now moot.

Claims 77-79, 82-87, and 97 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tiller *et al.* or Chowdhury (EP 0 135 144) or Chowdhury *et al.* in view of Singheiser (U.S. Patent No. 4,909,984). Those claims having been canceled, this rejection is now moot.

Claims 77-85 and 97 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tiller *et al.* or Chowdhury (EP 0 135 144) or Chowdhury *et al.* in view of Smeggil (U.S. Patent No. 4,826,738). Those claims having been canceled, this rejection is now moot.

Claims 77, 82-91, 96, and 97 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tiller *et al.* or Chowdhury (EP 0 135 144) or Chowdhury *et al.* in view of Nicoll (U.S. Patent No. 4,500,489). Those claims having been canceled, this rejection is now moot.

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### CONCLUSION

Having demonstrated that the cited references fail to disclose or suggest the invention as claimed, and all other formal issues having now been fully addressed, this application is in condition for allowance. Accordingly, Applicants request early and favorable reconsideration in the form of a Notice of Allowance.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated, since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response. Please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1712 (Docket #: 2002B124/2).

Respectfully submitted,

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Frank Reid  
Attorney for Applicants  
Registration No. 37,918

Post Office Address (to which correspondence is to be sent):  
ExxonMobil Chemical Company  
Law Technology  
P.O. Box 2149  
Baytown, Texas 77522-2149  
Telephone No. (281) 834-1743  
Facsimile No. (281) 834-2495